

CBE

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U. S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE
CALIFORNIA FOREST AND RANGE EXPERIMENT STATION
Division of Forest Insect Research

FOREST INSECT CONDITIONS
MIDDLETOWN AREA - LAKE COUNTY
RECONNAISSANCE SURVEY
December 1958

Introduction

On December 2 the Station received a field detection report from State Forest Technician Lon Spharler calling attention to pine engraver damage in ponderosa pine in the north half of T10N, R7W, in Lake County near Middletown. Subsequently Dan Dotta from the Sacramento office and Geoffrey Snow from the Santa Rosa District office, California Division of Forestry, made a ground inspection of the area. They confirmed the report and recommended a joint appraisal of the infestation area with an entomologist from the Experiment Station. Ralph C. Hall from the Station inspected the area with Messrs. Dotta and Snow on December 23rd. This inspection was in the form of a ground reconnaissance by car and foot over most of the area where engraver damage had been reported as acute.

Insect and Host Species

The host species involved in the infestation is second-growth ponderosa pine, with an occasional sugar pine in mixture. There is also considerable Douglas-fir in the area, but no noteworthy damage from insects was found in this species. The current infestation in pine consists of two principal insect species. These are the California five-spined engraver, Ips confusus Lec. and the western pine beetle, Dendroctonus brevicomis Lec. The red turpentine beetle, Dendroctonus valens Lec., is associated with both these species. The most aggressive of these insects by far is the California five-spined engraver.

Infestation Area

The infestation is restricted to portions of Townships 10 and 11 North, and Ranges 7 and 8 West. The heaviest concentrations of infested trees occur in the Hoodoo Creek and St. Marys Creek drainages a few miles southwest of Middletown. Other areas with moderate concentrations of loss are along the Canyon Creek drainage, south of Anderson Springs; the upper reaches of Dry Creek drainage; the dry ridge paralleling State Route 29; south and east of Cobb Mountain; Whispering Pines; and Griffords. (See map) The aggregate area infested is approximately 2,300 acres.

Status of the Infestation

Except in the Whispering Pines and Griffords areas, the infestation is almost exclusively the work of pine engraver beetles, with a moderate amount of red turpentine beetle attack. The California five-spined engraver is

ordinarily a top killer, or a killer of small pole-sized trees, but in the current infestation it seems to be killing large poles and sawtimber-sized second-growth trees up to 26 inches in diameter. Damage of this type is more typical of the western pine beetle, but an examination of about one-hundred dead trees disclosed western pine beetle associated with engravers in only three trees. The beetles in the infested trees are probably from the second tree-infesting generation. No evidence of an outbreak was apparent in the area until early December, when fading trees were first detected.

The infested trees occur in large groups up to about 100 trees per group. It is estimated that approximately 1,000 of these trees occur within the general area of the outbreak. Many of the groups are some distance from any source of logging slash. This is particularly true of those that occur along the dry ridge east of State Route 29 and the groups around Cobb Mountain. At the time of this survey, all stages of the engraver were present, but the broods were predominantly large larvae and pupae.

The two groups of infested trees observed at Whispering Pines and Griffords represented a fairly typical pine engraver-western pine beetle complex, with heavy overwintering Dendroctonus broods in the basal portion of trees top-killed by Ips. In this case, clearing for construction of an earth dam within a stand of large second-growth ponderosa pine appears to explain these infestations.

Discussion

The abundance and aggressiveness of pine engravers in this outbreak, together with the fact that many groups of infested trees many miles from a slash-breeding source, suggest some unusual circumstances associated with the infestation. Previous research has shown that deficient soil moisture and high temperature at times may have a marked influence on outbreaks. Weather data for the Middletown area show that the months of August, September, October, November, and early December this year were the warmest, or nearly the warmest, on record. Precipitation for these months, particularly October, November, and early December, was very low. There was no precipitation in August and only .01 inch in September. In October the total was .26 inch and in November only .30 inch. The total precipitation from period of August 1 to December 1 was 1.07 inches, or 14 percent of normal (7.40 inches).

Under normal circumstances California five-spined engraver outbreaks in standing trees develop from broods that breed up in logging slash during the spring and early summer, and make their initial attacks on the stand in August. This usually results in an additional generation in standing trees which overwinters and emerges early in the spring. In northern California the emerging beetles do not ordinarily attack standing trees in the spring of the year. For this reason control of the overwintering generation is not considered advisable because the infestation can be expected to subside without control. The principal hazard from pine engravers in northern California is that trees top-killed by these insects pave the way for the rapid buildup of the western pine beetle. Unless the western pine beetle is then controlled the end result is additional mortality in trees not top-killed.

In the present instance there has been very light fill-in by the western pine beetle, and unless this happens later this winter little could be accomplished through control except in the case of the groups at Whispering Pines and Griffords where the western pine beetle is more abundant. It is suggested that the Lake County area be kept under close surveillance during late winter and early spring for evidence of a buildup of the western pine beetle in the green, uninfested lower boles of trees top-killed by pine engravers.

January 29, 1959
Berkeley, California

Ralph C. Hall
Entomologist

Attachment: Map

Middletown-Lake Co. Insect Infestation
December 1958

○ Group Concentrations
(mostly *EPs*)

